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ABSTRACT

Using the metaphor of a river to describe continuous and lifelong learning, this paper details an action research project aimed at developing effective learning environments in a large, distributed organization called Thiess Contractors Proprietary Limited, an Australian mining and construction company. Two major outcomes of the project are described. Described first is the work activity briefing, a sharing of critical information by all participants on a work project. Out of the briefing dialogue is produced a document signed by all participants that serves as a project "blueprint" and identifies the activities, parties involved, actions required of them, and roles and responsibilities of the parties. Second, the Frontline Management Initiative that extended the training boundary is described. The authors explain how a group of workers, who identified their position in relation to their colleagues and found they needed to advance their individual and collective knowledge and skills to keep up, developed a program in which they had control of the methods, input, rate of activity, and agenda. The final section of the paper emphasizes the critical importance of the learner in all aspects of the learning process. (Contains 20 references.) (YLB)

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The river of learning in the workplace

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Using the metaphor of a river to describe continuous and lifelong learning, this paper details an action research project aimed at developing effective learning environments in a large, distributed organisation. This project is based on the theoretical assumptions of heutagogy (as opposed to pedagogy and andragogy), which is the study of self-determined learning. It is our belief that heutagogical approaches to learning are more likely to result in an increase in capability as well as competence. The concepts of heutagogy and capability and the research findings are discussed in detail, as well as the implications for vocational education and training.

The river of learning

Rivers are fascinating. Their mountain sources are thin trickles, cold and fresh, that merge into one as the river widens, becomes fuller and finds its way to the sea to be a rich estuary full of life and complete. Rivers meander and wind their way to the sea across all sorts of terrain, through all manner of climates. You can dip into a river anywhere and you can leave it when you will. And of course, it's not just a river - it gives birth to all manner of living things.

People know how to learn and are most likely to learn when there is context and meaning to the learning. Carl Rogers (1951) described this phenomenon in terms of the need for learning to be congruent with the self, the images we have of our experience and our relation to it. We do most of our learning outside of what are usually described as structured learning environments (this is an oxymoron of course). We also believe that this 'real life' learning is more resilient and more lasting. Another assumption we have made is that people in fact know how to learn. They may have forgotten how to do this because the education system makes them forget from about the age of five onwards. Until that time, we are excellent learners. This paper expands on this concept a little further and then describes an ongoing project of developing the river of learning in a large, distributed organisation.

Self-determined learning

Education has traditionally been seen as a pedagogic relationship between the teacher and the learner. It was always the teacher who decided *what* the learner needed to know, and indeed *how* the knowledge and skills should be taught. In the past thirty years or so there has been quite a revolution in education through research into how people learn, and resulting from this, further work on how teaching could and should be provided. While andragogy (Knowles 1970) provided

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many useful approaches for improving educational methodology, and indeed has been accepted almost universally, it still has connotations of a teacher-learner relationship.

Heutagogy (Hase and Kenyon 2000) is the study of self-determined learning and is concerned with how to harness the learning that occurs as a part of a person's total experience. Heutagogy is interested in approaches to learning that are not teacher-centred but person-centred. This idea is not new and draws on a humanistic theme that can be followed through the philosopher Heider (Emery 1974), phenomenology (Rogers 1951), systems thinking (Emery and Trist 1965), double loop and organisational learning (Argyris and Schon 1996), androgogy (Knowles 1984), learner-managed learning (Graves 1993; Long 1990), action learning (Kemmis and McTaggart 1998), capability (Stephenson 1992), and work-based learning (Gattegno 1996; Hase 1998), for example.

A more complete explanation and rationale for heutagogy can be found in a recent paper by Hase and Kenyon (2000).

Apart from the philosophical reason for looking at how to harness real learning in real situations, there is a more pragmatic reason, particularly for the vocational education and training sector, that has to do with the world in which we currently live. It is a world in which information is readily and easily accessible; change is so rapid that traditional methods of training and education are totally inadequate; discipline-based knowledge is inappropriate to prepare for living in modern communities and workplaces; learning is increasingly aligned with what we do; modern organisational structures require flexible learning practices; and there is a need for immediacy of learning.

It is our view that heutagogical approaches to learning will help people to remember how to learn and will better prepare them to manage in an increasingly complex world. The thrust that underscores these approaches is a desire to go beyond the simple acquisition of skills and knowledge as a learning experience. They emphasise a more holistic development in the learner of an independent capability (Stephenson, 1993), the capacity for questioning one's values and assumptions (Argyris and Schon 1996), and the critical role of the system-environment interface (Emery and Trist 1965).

The river of learning in an organisation

This case study concerns Thiess Contractors Proprietary Limited, an Australian mining and construction company. The company recognises the incredible importance of the capability of its workforce in relation to its competitiveness in a global environment. Thus, it has traditionally had a considerable commitment to training and human resource development. Over the past couple of years and with the support of the General Manager, Thiess has attempted to go beyond ensuring the competence (knowledge and skills) of its workforce (competence being an essential condition), to developing capability. Capable people are more likely to be creative; use their competencies in novel as well as familiar circumstances; know how to learn; work well in teams; and have strong self-efficacy (Stephenson 1993).

This project can best be described as action learning because it is cyclical and developmental. At the same time, there are elements of action research, because we have been documenting much of what has happened and attempting to make sense of the results in relation to current theory and practice.

However, given the quite reasonable constraints on the length of this paper, we will describe two major outcomes of the project so far.

The work activity briefing

During the past decade, Thiess has been experimenting with leading-edge inclusive communication and developmental processes. This work had its genesis in the series of Accords created between the Labor government of the 1980s and 1990s with the Australian Council of Trade Unions (ACTU), called Award Restructuring/ Workplace Reform programs. The first use of these processes for Thiess began in New South Wales (NSW) with the 1991 Junee Goal Project. The project was to build a modern, medium-security correctional facility in Junee, an area with high unemployment but a wide community of rural workers, railway trades and non-trade people. The project management sought to employ as many local residents as possible and to involve these workers in 'workplace teams'. These teams were given the task of work scheduling, programming, the skill development of their people, and accounting for the activities assigned to them.

This inclusive process was further refined and developed in other projects such as the RAAF Base Tindal 3C and the Gateway Motorway Extension Project. The process was then called a *work activity briefing* and had a more inclusive approach for the work activity participants, because the engineering personnel and the management/supervisory staff provided additional support. The *work activity briefing* had developed to where there was a formal skeleton around which critical information was hung. Such information as the task/activity description, the engineering detail, the risk analysis, the control requirements, the quality assurance requirement, the skill development needs and the action plan became points for dialogue and agreement. The outcome of the dialogue represented a *harvesting* of the available knowledge, skills and experiences that were requisite in the participants of the activity.

The work activity briefing process has been employed in a number of subsequent projects, and on each occasion it has been regarded by its participants as pivotal to the delivery of a project that has exceeded the expectations of the client in the areas of quality, time saving, cost reduction, industrial harmony and safety.

It is a well-known psychological phenomenon that is very difficult to change attitudes. Thus, shifting people from a tradition of developing and managing people by control to one of trust and empowerment will be a huge task. The quickest way to change attitudes is in fact through changes in behaviour. The work activity and pre-start meetings described below were a successful approach to this dilemma and are exemplars of shifting organisations to the recognition of how people really learn.

The work activity briefing is a form of self-managing work team. This activity involves all participants in the activity including engineers, supervisors, specialist support personnel workers, and in some cases, suppliers and subcontractors.

Such teams have become popular, because they offer a range of advantages, such as synergy based on the ability to access a pool of experience and knowledge resident within the team. They also offer an ability to rapidly inform and develop knowledge within the group and an increased level of involvement/commitment on the part of the group members. The aim of the activity is to identify and apply the best solution to a problem or opportunity within the project context.

In sociotechnical systems, the parlance of self-managing teams provide a mechanism by which the technical needs of work and the social needs of the individual and group can be drawn together to improve the quality of working life. The work activity briefing (WAB) process employed with this organisation brings together all parties involved in the activity. With the use of a proforma document, the essential pieces of information relating the activity - including the technical information, risks, safety considerations, previous relevant experience and skills that exist/are missing - are included in the spaces provided. Having attached all the relevant information, a discussion or series of discussions together with any developmental work are completed. The result is a plan for the achievement that represents the best option possible, within the project context. This document is then signed by all participants who use it as the 'blueprint' for the activity.

The power relationship changes for the project manager and the engineers, as the workers are able to provide new knowledge based on their experience, which is outside the knowledge of the engineers, such that the power relationship changes for them. The shifts in how the workers are now 'seen' suggest a level of equality and acceptance. A change in the normal 'truth' applied by management towards labour is changed, and thereby the manager or engineer is changed.

Another aspect of the WAB worthy of analysis is the document produced as part of the dialogue between the active parties. The document becomes a plan and identifies the activities, the parties involved, the actions required by them and the roles and responsibilities of the parties. It might also list the resources, together with timings and coordination of data. In essence, the document will 'govern' the activity.

Using this description, we can see that the requirements and specifications of the plan will govern the parties in the activity - and therefore their actions. The managers and supervisors will exercise power in coordinating the arrival of materials, and workers will exercise power through the application of their skills to the tasks without having to wait for instructions and directions. Indeed, the parties will in fact regulate themselves within the terms of the plan and the project context.

With the application of the signature of each participant of the WAB, each is identified as being a party to the knowledge and power that can be exercised to achieve the desired outcome.

Another aspect of the WAB worthy of discussion is the taken-for-granted assumptions that also govern the bodies involved in the activity. For example, those who are part of the dialogue and certainly those who sign the document take for granted that each participant will do their best to achieve the desired outcome; will exhibit a level of professionalism and skill that will deliver the quality specified; and will demonstrate a level of commitment that will ensure that obstacles that might

have proven a limiting factor under ordinary circumstances will not prevent the parties from achieving the deadlines.

An extension of the WAB has been the establishment of pre-start briefings, in which teams meet at the start of the shift and discuss issues. On conception, the primary aim was work safety, but soon the briefings involved discussing the day's activities and what could be learned from the previous day. Interviews with participants (Hase et al 1998) revealed a high level of empowerment, involvement and sense of commitment to the work team. It was clear that learning was taking place even though it was not credentialed, and that the learning was an inherent part of what they did rather than an add-on.

What we see happening with work activity and with pre-start briefings is the development of elements of capability such as: learning to learn; higher self-efficacy; using competency in novel situations; creativity; and working in teams. The learning and management are planned but the processes are person-centred.

Extending the training boundary through the Frontline Management Initiative (FMI)

This is an example of a group of workers who identified their position in relation to their colleagues and found that they needed to advance their individual and collective knowledge and skills in order to keep up. The program that follows was one where they had control of the methods, the input, the rate of activity and the agenda. These were negotiated and agreed upon.

Phase 1

Supervisors (forepersons/superintendents) working for Thiess expressed a need to engage in some form of training that would develop their skills. The FMI program was eventually selected and Kangaroo Point TAFE institute was engaged to provide the assessment processes so that formal credit could be provided.

Three sessions were used to discuss the program to identify in detail the competency standards and then assess each supervisor against the competencies at the diploma level.

The result was a gaining of clear credit in some competencies, an equally clear indication that there was not credit to be given in some and an indication that some skills were being used but the underpinning knowledge supporting those skills was missing.

The decision was therefore made to enhance those skills that were not complete and to develop the knowledge and skills in those that were completely deficient.

Phase 2

A meeting was convened where all parties discussed the various options available to them. The key stakeholders in this meeting were the participants in the program. Of all the options, the supervisors decided that 'a little often' would be easier to handle than an absence from work for even one day.

An after-hours workshop approach was used, in which the supervisors gathered for two hours, usually on a Monday, with the Manager for Training and the site Training Officer. A coaching/facilitating role was used to urge, inform and provoke the supervisors to explore the references and their own experiences.

The supervisors were given control over the sequence, the subject choice and workshop agenda. In this way, they 'owned' the process. The only imposition was that the first subject for exploration be leadership. Our argument for this was that all subjects to be explored have their foundations in leadership. Interestingly, the tension between leadership/management was always running through the debates and assignments. All assignments were practical in nature and based in the work they were actually doing on-site rather than invoked by an external examiner.

Each week a new subject area was explored and the next subject chosen for the following week. Each week there was also a general process for reporting back, which was controlled by the supervisors in which each would share how the assignment had gone during the week. In each assignment, the subject area was to be used to improve the project, its processes or the workforce.

Towards the end of the project, the supervisors, by reviewing their progress, realised that the time available would not be sufficient to completed the outstanding skill/knowledge development. They determined that they would devote additional time to the workshops following a negotiation with the facilitators. An interesting trade-off was that they would need to negotiate with the project manager for an evening meal. The test of the skill of the negotiators was evaluated by their peers - the test being the quality of the meal.

At the completion of Phase 2, the Kangaroo Point TAFE re-assessed each supervisor to determine the progress made.

Phase 3

The original assessor was used to determine if progress had been made that was sufficient to gain the incomplete and missing competencies. Each supervisor was found to be competent and a diploma was issued at a graduation ceremony.

On review, the supervisors were strong in their praise of the processes of learning they had gone through, the skills and knowledge they had obtained and its positive effects on production, safety and work relations with the workforce and subcontractors. There is anecdotal evidence from discussion with the workforce that an almost 'road to Damascus' style of change had come about in some supervisors. Even the well regarded supervisors had been observed to have improved.

But the greatest comments came from the supervisors themselves when they declared that whilst they had believed that they had been acting as a team prior to the learning program, their greatest lesson came from the experiences throughout the program that converted them into a supporting team, operating to assist each other.

A river of learning in vocational education and training

Heutagogical approaches to vocational education and training recognise the critical importance of the learner in all aspects - not just the teaching - of the learning

process. The aim is to enable people to remember how to learn and facilitate the development of capability. Thus, the major stakeholder is involved in the determination of learning objectives and how these may be achieved. Clearly this is a negotiated experience if formal learning is involved. So, the emphasis is on process rather than outcome. By being person-centred, ownership over the learning is enhanced as well as the likelihood that the learning will in fact be meaningful.

Most evaluations of learning occur at the end of some sort of program. This approach suggests that evaluation is ongoing and formative rather than summative, in similar ways to action learning processes. This means that programs need to be flexible enough to change. In non-formal learning settings, such as the day-to-day activity in the workplace, it is a question of designing ways for people to get together and harness their learning in relation to current projects.

There is an assumption in all of this that while competence in a particular area is essential, there is a need to move beyond knowledge and skills which really measure the past, towards a capability that is preparation for the future.

There are now many good examples of workplace learning in the vocational education and training sector. Usually these involve projects at some work-based level as a means of assessment and facilitated learning, as opposed to teaching. The negotiated design of relevant assessment between the learner and facilitator is essential if the learning is to be at all relevant and person-centred. The guru factor is removed.

It is surprising the extent to which effort is put into designing what are purported to be self-directed learning materials in print form that now appear on the web as 'online learning'. Most learning materials of this form are in fact teacher-centred rather than self-directed and usually consist of directed reading, content and concept summaries and then activities, or some such combination. A heutagogical approach emphasises the provision of resources rather than content. If an outcome or assessment is designed in the right kind of way (and negotiated) and a few signposts are provided, learners have to try and make sense of the topic or issue and come to their own conclusions (which they will do anyway despite what the teacher says). Learner-directed questions become the norm, rather than teacher-directed answers.

Team-based approaches to learning assist people to learn how to cooperate in teams. However, there is not much point in this process if, in fact, assessment is designed as competitive rather than cooperative. Again, negotiation is a critical skill and needs to be as much a win-win process as possible.

As Dawkins has suggested, answers are easy to find; it is knowing what questions to ask that is the real limit to our understanding. A real challenge to the designers of learning experiences - whether they are formal or informal - is to be creative enough to have learners ask questions about the universe they inhabit. Our education and training and management systems are often designed in such a way as to limit this kind of creative thinking. These systems would rather provide people with the question and the answer together as a learning package. Heutagogical approaches suggest a more active role for the learner.

It's interesting how much tacit learning people have about all sorts of things, yet they rarely articulate it. One way of enhancing learning is to access this tacit learning people have and then have them question and improve it in new ways that make sense to them. The key to this is how to create opportunities in everyday work environments where this can happen, without having to resort to classrooms and the internet. One of the most common reasons that I hear about why workers do not access formal training programs is that there is so little 'down-time' to do so; there are not enough rainy days. Making learning an integral part of day-to-day work and finding ways to harness that learning and make sense of it is one of the most critical challenges that faces educators and managers in modern organisations.

Summary

People know how to learn; they did it from birth until they went to school. It's a question of helping them remember how to do it. We need to help people have confidence in their perceptions and question their interpretation of reality, within a framework of competence.

It is worth remembering that a lake is not a river.

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